IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation - Data Sheet oFOx82; VII.A1.11

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HO + $CF_3CF_2CH_2CH_2CF_2CF_3$ (HFC-55-10mcff) → $CF_3CF_2CHCH_2CF_2CF_3$+ H_2O

Rate coefficient data (*k*)

k/cm^3 molecule^{-1} s^{-1}	*T*/K	Reference	Technique/ Comments
Absolute Rate Coefficients			
$(7.87\pm0.38) \times 10^{-15}$	295	Nelson et al. (1995)	DF-LIF (a)

Comments

(a) HO radicals were produced by the reaction of H atoms with NO_2. Experiments were performed in 1.6-2.7 Torr (2.1-3.6 mbar) of helium diluent.

Preferred Values

Parameter	Value	*T*/K
k	8.3×10^{-15} cm^3 molecule^{-1} s^{-1}	298
Reliability		
$\Delta \log k$	0.15	298

Comments on Preferred Values

Nelson et al. measured $k(HO+CF_3CF_2CH_2CH_2CF_2CF_3) = (7.87 \pm 0.38) \times 10^{-15}$ cm^3 molecule^{-1} s^{-1} at 295 K. Using an activation energy estimated to be 3.2 kcal mol^{-1} (13.4 kJ mol^{-1}), Nelson et al. derived a value of $k(HO+CF_3CF_2CH_2CH_2CF_2CF_3) = (8.3 \pm 0.9) \times 10^{-15}$ cm^3 molecule^{-1} s^{-1} at 298 K which is our recommendation.

References

Nelson Jr., D.D., Zahniser, M.S, Kolb, C.E, and Magid, H.: J. Phys. Chem., 99 16301, 1995.